

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 November 2000 (23.11.00)	ETATS-UNIS D'AMERIQUE in its capacity as elected Office
International application No. PCT/US00/06258	Applicant's or agent's file reference YO999-123P
International filing date (day/month/year) 11 March 2000 (11.03.00)	Priority date (day/month/year) 12 March 1999 (12.03.99)
Applicant CHU, Jack, O.	

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

12 October 2000 (12.10.00)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>Olivia TEFY</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference Y0999-123P	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 06258	International filing date (day/month/year) 11/03/2000	(Earliest) Priority Date (day/month/year) 12/03/1999
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. Certain claims were found unsearchable (See Box I).

3. Unity of Invention is lacking (see Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

1

Non of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/06258

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L29/778

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 241 197 A (MURAKAMI ET AL.) 31 August 1993 (1993-08-31) cited in the application the whole document ---	1,13,26, 37,52, 69,89, 110, 118-126, 131-137
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 484 (E-1426), 2 September 1993 (1993-09-02) & JP 05 121450 A (HITACHI LTD), 18 May 1993 (1993-05-18) abstract ---	1,13,26, 37,52, 69,89, 99,110, 126, 131-137



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

6 July 2000

Date of mailing of the international search report

13/07/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Baillet, B

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/06258

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	G. HÖCK ET AL.: "High performance 0.25μm p-type Ge/SiGe MODFETs" ELECTRONICS LETTERS, vol. 34, no. 19, 17 September 1998 (1998-09-17), pages 1888-1889, XP000922999 cited in the application the whole document ---	1, 13, 26, 37, 52, 69, 89, 99, 110, 126, 131-137
A	KONIG U ET AL: "P-TYPE GE-CHANNEL MODFET'S WITH HIGH TRANSCONDUCTANCE GROWN ON SI SUBSTRATES" IEEE ELECTRON DEVICE LETTERS, US, IEEE INC. NEW YORK, vol. 14, no. 4, 1 April 1993 (1993-04-01), pages 205-207, XP000426251 ISSN: 0741-3106 cited in the application the whole document ---	1, 13, 26, 37, 52, 69, 89, 99, 110, 118-126, 131-137
A	MILIND GOKHALE ET AL: "ENHANCED PERFORMANCE OF PMOS AND CMOS CIRCUITS USING SELF-ALIGNED MOSFETS WITH MODULATION DOPED SI-GE CHANNEL" PROCEEDINGS OF THE BIENNIAL UNIVERSITY / GOVERNMENT / INDUSTRY MICROELECTRONICS SYMPOSIUM, US, NEW YORK, IEEE, vol. SYMP. 10, 1993, pages 219-222, XP000410475 the whole document ---	1, 13, 26, 37, 52, 69, 89, 99, 110, 118-126, 131-137
A	KONIG U ET AL: "SiGe HBTs and HFETs" SOLID STATE ELECTRONICS, GB, ELSEVIER SCIENCE PUBLISHERS, BARKING, vol. 38, no. 9, 1 September 1995 (1995-09-01), pages 1595-1602, XP004062484 ISSN: 0038-1101 the whole document -----	1, 13, 26, 37, 52, 69, 89, 99, 110, 126, 131-137

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/06258

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5241197 A	31-08-1993	JP	2196436 A	03-08-1990
		JP	3016230 A	24-01-1991
		EP	0380077 A	01-08-1990
JP 05121450 A	18-05-1993	NONE		

PATENT COOPERATION TREATY

PCT

REC'D 17 JUL 2001

W/30

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference YO999-123P	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/06258	International filing date (day/month/year) 11 MARCH 2000	Priority date (day/month/year) 12 MARCH 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): HOIL 31/0328, 31/0336, 31/072, 31/109, 31/117 and U.S. Cl: 257/192 and 616		
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

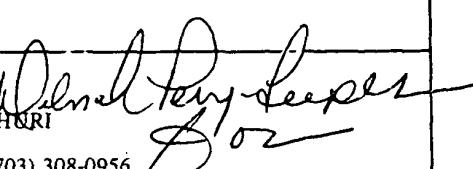
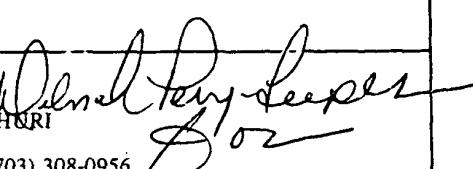
2. This REPORT consists of a total of 4 sheets.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 12 OCTOBER 2000	Date of completion of this report 26 JUNE 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer OLIK CHAUDHURI 
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0956 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/06258

I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed the description:pages 1-31, as originally filedpages NONEpages NONE, filed with the demandpages NONE, filed with the letter of _____ the claims:pages 32-68, as originally filedpages NONE, as amended (together with any statement) under Article 19pages NONEpages NONE, filed with the demandpages NONE, filed with the letter of _____ the drawings:pages 1-17, as originally filedpages NONEpages NONE, filed with the demandpages NONE, filed with the letter of _____ the sequence listing part of the description:pages NONE, as originally filedpages NONEpages NONE, filed with the demandpages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in printed form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. The amendments have resulted in the cancellation of: the description, pages NONE the claims, Nos. NONE the drawings, sheets/fig NONE5. This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/06258

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. statement**

Novelty (N)	Claims <u>(Please See supplemental sheet)</u>	YES
	Claims <u>(Please See supplemental sheet)</u>	NO
Inventive Step (IS)	Claims <u>(Please See supplemental sheet)</u>	YES
	Claims <u>(Please See supplemental sheet)</u>	NO
Industrial Applicability (IA)	Claims <u>(Please See supplemental sheet)</u>	YES
	Claims <u>(Please See supplemental sheet)</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1,13,26,37,52,69,89,110,118-126,131-137 lack an Inventive Step under PCT Article 33(3), as being obvious over US 5,241,197. The entire document describes a p-channel FET, including a single crystalline substrate, layers of SiGe, alternatively doped and undoped layers up to a nine layer structure, having a strain relief structure, a MODFET and a MOSFET.

Japanese Patent Publication No. 05-121450 also describes in the abstract structure relevant to claims 1,13,26,37,52,69,89,99,110,126 and 131-137.

----- NEW CITATIONS -----
NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/06258

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

V. 1. REASONED STATEMENTS:

The report as to Novelty was positive (YES) with respect to claims 1-140.

The report as to Novelty was negative (NO) with respect to claims NONE.

The report as to Inventive Step was positive (YES) with respect to claims 2-12,14-25,27-36,38-51,53-68,70-88,90-109,111-117,127-130 and 138-140.

The report as to Inventive Step was negative (NO) with respect to claims 1,13,26,37,52,69,89, 110, 118-126 and 131-137.

The report as to Industrial Applicability was positive (YES) with respect to claims 1-140.

The report as to Industrial Applicability was negative (NO) with respect to claims NONE.



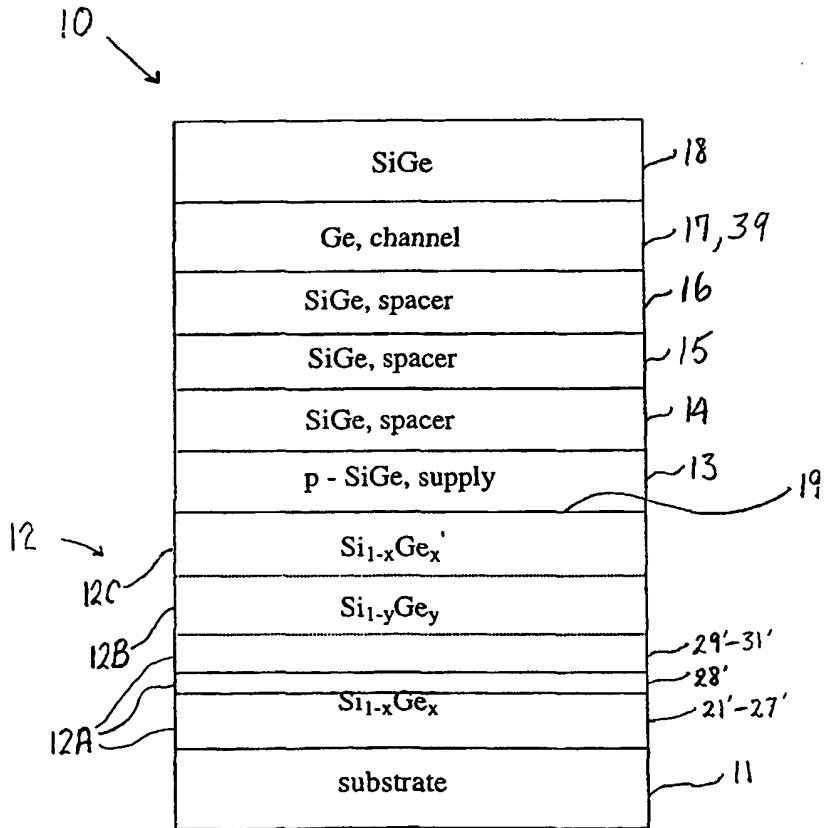
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H01L 29/778	A1	(11) International Publication Number: WO 00/54338 (43) International Publication Date: 14 September 2000 (14.09.00)
<p>(21) International Application Number: PCT/US00/06258</p> <p>(22) International Filing Date: 11 March 2000 (11.03.00)</p> <p>(30) Priority Data: 60/124,299 12 March 1999 (12.03.99) US</p> <p>(71) Applicant (for all designated States except US): INTERNATIONAL BUSINESS MACHINES CORPORATION [US/US]; New Orchard Road, Armonk, NY 10504 (US).</p> <p>(72) Inventor; and</p> <p>(75) Inventor/Applicant (for US only): CHU, Jack, O. [US/US]; 44 Shelbourne Lane, Manhasset Hills, NY 11040 (US).</p> <p>(74) Agent: TREPP, Robert, M.; IBM Corporation, Intellectual Property Law Dept., P.O. Box 218, Yorktown Heights, NY 10598 (US).</p>		<p>(81) Designated States: CN, JP, KR, SG, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> </p>

(54) Title: HIGH SPEED GE CHANNEL HETEROSTRUCTURES FOR FIELD EFFECT DEVICES

(57) Abstract

A method and a layered heterostructure for forming high mobility Ge channel field effect transistors is described incorporating a plurality of semiconductor layers on a semiconductor substrate, and a channel structure of a compressively strained epitaxial Ge layer having a higher barrier or a deeper confining quantum well and having extremely high hole mobility for complementary MODFETs and MOSFETs. The invention overcomes the problem of a limited hole mobility due to alloy scattering for a p-channel device with only a single compressively strained SiGe channel layer. This invention further provides improvements in mobility and transconductance over deep submicron state-of-the art Si pMOSFETs in addition to having a broad temperature operation regime from above room temperature (425 K) down to cryogenic low temperatures (0.4 K) where at low temperatures even high device performances are achievable.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/06258

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L29/778

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 241 197 A (MURAKAMI ET AL.) 31 August 1993 (1993-08-31) cited in the application the whole document ----	1, 13, 26, 37, 52, 69, 89, 110, 118-126, 131-137
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 484 (E-1426), 2 September 1993 (1993-09-02) & JP 05 121450 A (HITACHI LTD), 18 May 1993 (1993-05-18) abstract ----	1, 13, 26, 37, 52, 69, 89, 99, 110, 126, 131-137

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

6 July 2000

13/07/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Baillet, B

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/06258

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	G. HÖCK ET AL.: "High performance 0.25μm p-type Ge/SiGe MODFETs" ELECTRONICS LETTERS, vol. 34, no. 19, 17 September 1998 (1998-09-17), pages 1888-1889, XP000922999 cited in the application the whole document ---	1,13,26, 37,52, 69,89, 99,110, 126, 131-137
A	KONIG U ET AL: "P-TYPE GE-CHANNEL MODFET'S WITH HIGH TRANSCONDUCTANCE GROWN ON SI SUBSTRATES" IEEE ELECTRON DEVICE LETTERS, US, IEEE INC. NEW YORK, vol. 14, no. 4, 1 April 1993 (1993-04-01), pages 205-207, XP000426251 ISSN: 0741-3106 cited in the application the whole document ---	1,13,26, 37,52, 69,89, 99,110, 118-126, 131-137
A	MILIND GOKHALE ET AL: "ENHANCED PERFORMANCE OF PMOS AND CMOS CIRCUITS USING SELF-ALIGNED MOSFETS WITH MODULATION DOPED SI-GE CHANNEL" PROCEEDINGS OF THE BIENNIAL UNIVERSITY / GOVERNMENT / INDUSTRY MICROELECTRONICS SYMPOSIUM, US, NEW YORK, IEEE, vol. SYMP. 10, 1993, pages 219-222, XP000410475 the whole document ---	1,13,26, 37,52, 69,89, 99,110, 118-126, 131-137
A	KONIG U ET AL: "SiGe HBTs and HFETs" SOLID STATE ELECTRONICS, GB, ELSEVIER SCIENCE PUBLISHERS, BARKING, vol. 38, no. 9, 1 September 1995 (1995-09-01), pages 1595-1602, XP004062484 ISSN: 0038-1101 the whole document -----	1,13,26, 37,52, 69,89, 99,110, 126, 131-137

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/06258

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5241197	A 31-08-1993	JP JP EP	2196436 A 3016230 A 0380077 A	03-08-1990 24-01-1991 01-08-1990
JP 05121450	A 18-05-1993	NONE		

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:
IBM Corporation
Intellectual Property Law
Attn. TREPP, Robert M.
P.O. Box 218
Yorktown Heights, New York 10598
UNITED STATES OF AMERICA

**NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION**

(PCT Rule 44.1)

<p>Date of mailing (day/month/year)</p>	13/07/2000
<p>Applicant's or agent's file reference Y0999-123P</p>	
<p>International application No. PCT/US 00/06258</p>	<p>FOR FURTHER ACTION See paragraphs 1 and 4 below</p>
<p>International filing date (day/month/year)</p>	
11/03/2000	
<p>Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION et al.</p>	

1. The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
 34, chemin des Colombettes
 1211 Geneva 20, Switzerland
 Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

<p>Name and mailing address of the International Searching Authority</p> <hr/> <p>European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 po nl, Fax: (+31-70) 340-3016</p>	<p>Authorized officer</p> <p>Marjory Sastropawiro</p>
--	--

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b));

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.